CLAIM OR CLAIMS

WE CLAIM:

1. A microarray comprising a plurality of subarrays wherein at least one subarray contains a set of nucleic acid probes of interest, and wherein at least one subarray is surrounded by an interstitial region; wherein the interstitial region comprises at least one visible or machine readable alignment marked conformed by photopatterning a group-bearing phosphoramidite onto the interstitial region of a microarray.

2. The microarray of Claim 1 wherein the alignment mark comprises a hapten and an illuminating compound.

3. The microarray of Claim 2 wherein the hapten is a biotin or DNP.

4. The microarray of Claim 2 wherein the illuminating compound is streptavidin-conjugated to a reporter molecule.

5. The microarray of Claim 4 wherein the reporter molecule is selected from the group consisting of a catalytic antibody, colloidal metal suspension, dye, fluorophore-labeled microparticles, alkaline phosphotase, and horseradish peroxidase.

6. The microarray of Claim 1 wherein the alignment mark is flexibly deployable within the array and can be placed with great precision immediately adjacent to and surrounding the subarray.

7. A method for making a microarray having a plurality of subarrays surrounded by a visible or machine readable alignment mark in an interstitial region of the microarray, the method comprising the steps of:

a) selecting at least one probe set comprising probes of interest;

b) building the probe sets on a microarray slide to provide a plurality of subarrays; and

c) depositing between subarrays a hapten and an illuminating compound to form the alignment mark between the subarrays on the microarray.

8. The method of Claim 7 wherein the hapten comprises is a biotin or DNP.

9. The method of Claim 7 wherein the illuminating compound is streptavidin conjugated to a reporter molecule.

10. The method of Claim 9 wherein the streptavidin is bound to a reporter molecule selected from the group consisting of a catalytic antibody, colloidal metal suspension, dye, fluorophore-labeled microparticles, alkaline phosphotase, and horseradish peroxidase.

11. The method of Claim 6 wherein the hapten is deposited by photopatterning a group-bearing phosphoramidite onto the interstitial region of the microarray.

12. The method of Claim 11 wherein the phosphoramidite is NPPOC.

13. The method of Claim 7 wherein the alignment mark is flexibly deployable within the array and can be placed with great precision immediately adjacent to and surrounding the subarray.

14. A method for aligning microarrays, the method comprising the steps of:

a) providing the microarray of Claim 1;

b) exposing the microarray to an optical detection device to detect the visible or machine readable alignment mark on the interstitial region surrounding the subarrays; and

c) aligning the microarray according to the location of the visible or machine readable alignment mark so as to accurately deposit samples into the subarrays of a microarray.

15. The method of Claim 14, wherein the optical detection device is either a scanning laser diode or an image capture and analysis device.

16. The method of Claim 14, wherein the samples are deposited into the subarrays using robotics.